

## Claims

18-06-2001

1. ~~Device~~ for separating small drops of liquid from a flowing gas, containing liquid mist, comprising a first container (17), formed of a cylindrical lateral wall (18) and two opposite end walls (19, 20), said first container having an inlet (23) in one end wall for the gas/mist, a first outlet (24) in its other end wall for the gas and a second outlet (25) at or in the vicinity of the second end wall for liquid separated out of the gas, a second container (28) with means (26, 27) for rotatably mounting the first container in the second container rotationally symmetrically in relation to said inlet and said first outlet, and drive means (30) for rotation of the first container in the second container, wherein the inlet (23) and the outlets (24, 25) communicate with each other via a plurality of layers of peripherally spaced, narrow channels (34) extending in the direction of the rotational axis and being disposed at a radial distance from the rotational axis, said narrow channels having a radial dimension (r) being adapted to their length, their radial distance to the rotational axis, the flow velocity of the gas and the rotational speed, so that at least the major portion of the liquid drops in the mist will have time to be deposited on the channel walls before they reach the outlet, **characterized in that** the inlet (23) of the first container (17) is joined to a ventilation conduit from a crankcase of an internal combustion engine (1), and its outlet (24) is joined to an inlet air conduit to the engine.

2. Device according to claim 1, **characterized in that** the inlet (23) has an inlet opening placed concentrically with the rotational axis of the first container, said inlet opening leading to a plurality of radial inlet passages (35) leading out to inlets of the channels (34), and that the channels have outlets opening, firstly, into a plurality of radial outlet passages (36), through which the gas can flow into an outlet opening (24) placed concentrically with said rotational axis, and, secondly, into a plurality of outlet openings (25), through which liquid deposited under the effect of the centrifugal force on the walls of the channels, can flow radially outwards to a space between the first container and the second container.

3. Device according to claim 2, **characterized in that** the containers (17, 28) are oriented with the rotational axis vertical so that liquid separated out can flow, by the force of gravity, to the inlet end and out through a liquid outlet (42) from the second container (28).

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4. Device according to claim 2 or 3, **characterized in that** the end walls have two axially spaced walls (19, 37 and 20, 38, respectively) which, together with intermediate radially directed wall portions (39), define said passages (35, 36).

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5. Device according to one of claims 1-4, **characterized in that** the drive means are formed by a liquid turbine (30).

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6. Device according to claim 5, **characterized in that** the end walls (19, 20) are joined to rotatably mounted hollow shafts (21, 22), the interiors of which forming inlet and outlet channels, respectively (23 and 24, respectively), and in that a turbine wheel (30) is fixed to one of said shafts.

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7. Device according to one of claims 1-6, **characterized in that** the extent of the channel layers radially amounts to circa 20% of the radius of the first container (17).

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8. Device according to one of claims 1-7, **characterized in that** the radius of the first container (17) is circa 100 mm and its length circa 200 mm, that the container is designed to be driven at a rotational speed of circa 3 000 rpm, that the radial dimension (r) of the channels (34) is less than 1 mm, and that the outermost channel layer is located at a maximum radial distance from the rotational axis.